



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,195	03/24/2004	Sotaro Tsukamoto	SON-2982	3711
23353	7590	11/14/2005	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			GEBREMARIAM, SAMUEL A	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/807,195

Applicant(s)

TSUKAMOTO ET AL.

Examiner

Samuel A. Gebremariam

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-6,9,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 2-4, 6 and 11 is/are rejected.
- 7) ☒ Claim(s) 5,9 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The indicated allowability of claims 2-6 are withdrawn in view of the newly discovered reference(s) to Marcantonio, US patent No. 5,796,170. Rejections based on the newly cited reference(s) follow.

#### ***Specification***

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of claim 2 is unclear because of the limitation "one bare semiconductor integrated circuit device; a first shield wiring film on which the semiconductor integrated circuit device is directly mounted; a second shield wiring film provided so as to oppose the first wiring film with the semiconductor integrated circuit device interposed therebetween". How is it possible to have a bare semiconductor device, while the semiconductor device is interposed between the first and second shielding films? It is unclear how the word "bare" is used.

The limitation of "providing an electrical connection between at least two of the interlayer insulating films" as recited in claim 2 is confusing as to what it means. How is one able to make electrical connections between two insulating films?

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Marcantonio, US patent No. 5,796,170

Regarding claim 2, Marcantonio teaches (fig. 4) a wiring board comprising: interlayer insulating films (224,226,228); multilayer wiring films (220, 222), each being provided at one of the interlayer insulating films or between two of the interlayer insulating films (refer to fig. 4); interlayer-connection conductor films (240), each extending through at least one of the interlayer insulating films (224,226,228) and providing an electrical connection between at least two of the interlayer insulating films (providing electrical connection between conductors that are on the interlayer insulating films); at least one bare semiconductor integrated circuit device (212); a first shield wiring film (214) on which the semiconductor integrated circuit device is directly mounted (fig. 4); a second shield wiring film (250, col. 4, lines 64-67 and col. 5, lines 1-12) provided so as to oppose the first wiring film (214) with the semiconductor integrated circuit device (212) interposed therebetween; and a plurality of shield

Art Unit: 2811

interlayer-connection conductor films (242) that are provided so as to surround a periphery of the semiconductor integrated circuit device (212) and that provide electrical connections between the first shield wiring film (214) and the second shield wiring film (251), each shield interlayer-connection conductor film (242) extending through at least one of the interlayer insulating films (224,226,228).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcantonio.

Regarding claim 3, Marcantonio teaches substantially the entire claimed structure of claim 2 above except explicitly stating that the first and second shield wiring films have a gap therebetween, the gap being smaller than one half a wavelength  $\lambda_g$  of an electromagnetic wave to be prevented from radiating.

However Marcantonio teaches forming a structure that function as a Faraday cage to provide EMI (electromagnetic interference) shielding (col. 5, lines 1-12).

Furthermore parameters such as gap between shields in the art of semiconductor manufacturing process are subject to routine experimentation and optimization to achieve the desired device characteristics during fabrication.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the gap between the first and second shield wiring films as claimed in order to form a package having EMI shielding.

Regarding claim 4, Marcantonio teaches substantially the entire claimed structure of claim 2 above except explicitly stating that at least one of the shield wiring films has a hole, a diameter or a longitudinal side of the hole being smaller than one half a wavelength  $\lambda_g$  of an electromagnetic wave to be prevented from radiating.

Parameters such as size of a hole in the art of semiconductor manufacturing process are subject to routine experimentation and optimization to achieve the desired device characteristics during fabrication.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the dimension of the hole in the shield wiring film as claimed in order to form a package having EMI shielding.

Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcantonio in view of admitted prior art (APA).

Regarding claims 6 and 11, Marcantonio teaches substantially the entire claimed structure of claims 2-4 above except explicitly stating that the wiring board according to one of claims 2 and 3; at least one semiconductor integrated circuit device provided on the wiring board; and at least one passive component provided on the wiring board.

APA teaches (fig. 1) forming semiconductor integrated circuit device (105) provided on the wiring board (101); and at least one passive (106) component provided on the wiring board in a structure of a circuit module.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the semiconductor integrated circuit device and the passive component taught by APA in the structure of Marcantonio in order to integrate several devices on the same wiring board.

***Allowable Subject Matter***

9. Claims 5, 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Reason for indicating Allowable Subject Matter***

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or suggest, singularly or in combination at least the limitation of "first and second shield wiring films and the shield interlayer-connection conductor films define a shield cage having rectangular-parallelepiped inner space with height  $a$ , width  $b$ , and length  $c$ , where  $a \leq b \leq c$ , and a wavelength  $\lambda_g$  of an electromagnetic wave to be prevented from radiating satisfies a relationship:

$$\lambda_g > 2 / [ \{ (1/b)^2 + (1/c)^2 \}^{1/2} ].$$

***Response to Arguments***

11. Applicant's arguments with respect to claims 2-4, 6 and 11 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2811

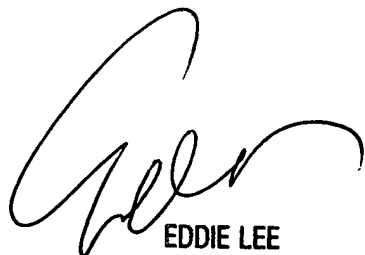
***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A Gebremariam whose telephone number is (571) 272-1653. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAG  
November 4, 2005



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800